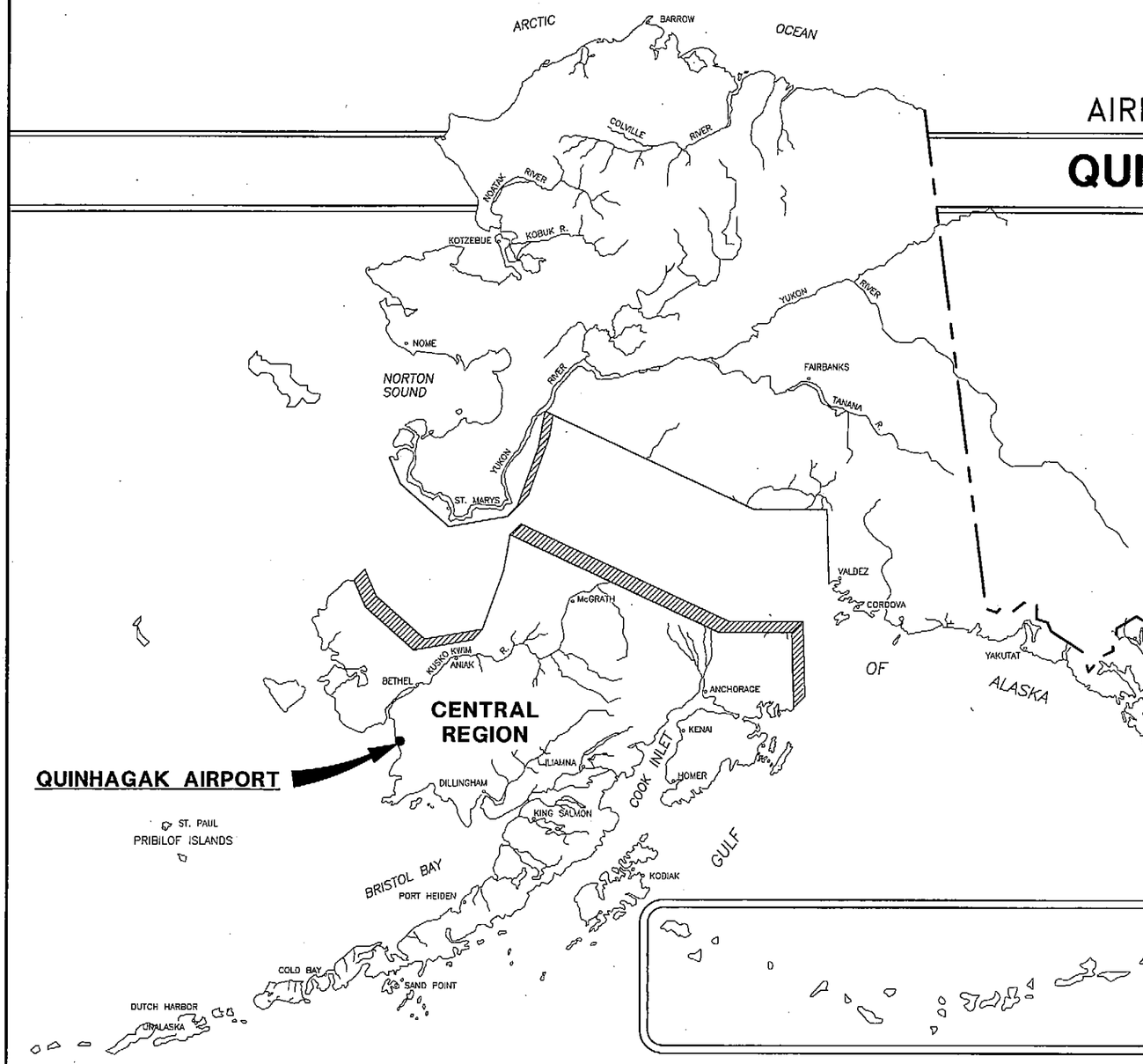


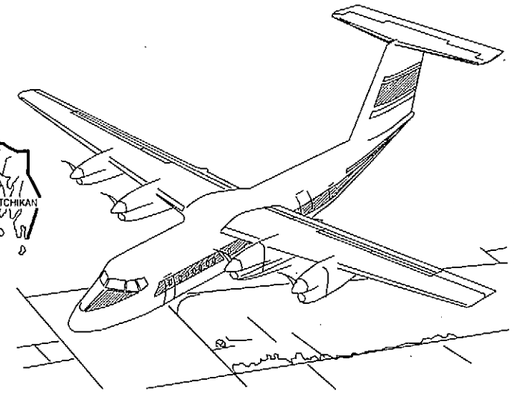
AIRPORT LAYOUT PLAN FOR

QUINHAGAK AIRPORT

1997

DRAWING INDEX

METRIC



FAA AIRSPACE REVIEW NUMBER: 97AAL-034-NRA

SPONSORED BY
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION DESIGN AND CONSTRUCTION

APPROVED _____ DATE 4-22-97
STEVE VAN HORN, P.E. — DESIGN SECTION CHIEF

APPROVED _____ DATE 4-22-97
MIRIAM M. TANAKA, P.E. — PROJECT MANAGER

AIRPORT LAYOUT PLAN CONDITIONALLY APPROVED

By: _____
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600

DATE: 6/1/97

QUINHAGAK AIRPORT

AIRPORT LAYOUT PLAN

SHEET 1 OF 8

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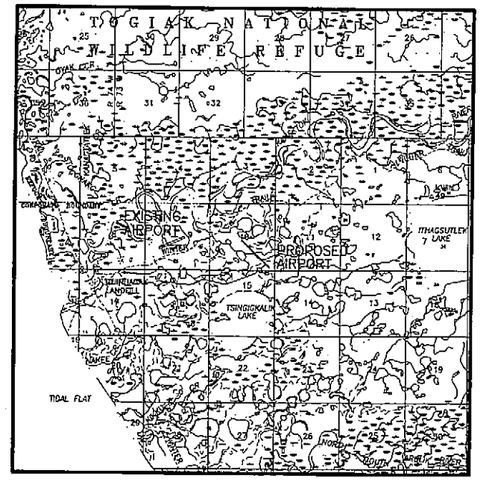
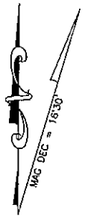


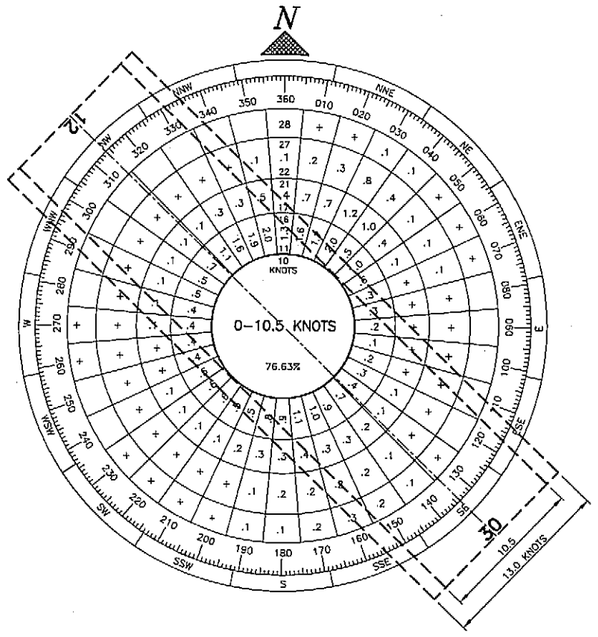


VICINITY MAP

25.4 mm = 1 MILE
T 5 S, R 74 W, SEC. 10
SEWARD MERIDIAN
U.S.G.S. GOODNEWS BAY (C-8, D-8), ALASKA

CONVERSION FACTORS FROM SI UNITS

TO CONVERT FROM	TO	MULTIPLY BY
STATION (1000 METERS (M))	FEET	3280.84
KILOMETER (KM)	MILE	0.6214
METER (M)	MILE	0.00062137
METER (M)	FOOT	3.28084
CENTIMETER (CM)	FOOT	0.0328084
CENTIMETER (CM)	INCH	0.3937008
SQUARE METER (M^2)	SQUARE FOOT	10.76391042
SQUARE METER (M^2)	SQUARE YARD	1.19599
SQUARE METER (M^2)	ACRE	0.00024711
CUBIC METER (M^3)	CUBIC FOOT	35.3146667
CUBIC METER (M^3)	CUBIC YARD	1.3079506
CUBIC METER (M^3)	GALLON (US LIQUID)	264.17204
CUBIC METER (M^3)	M. GAL.	0.26417204
KILOGRAM (KG)	POUND-MASS (LBF)	2.2046225
KILOGRAM (KG)	TON (SHORT)	0.00110231
NEWTON (N)	POUND-FORCE (LBF)	0.2248089
LUX (LX)	FOOTCANDLE	0.092903
DEGREE CELSIUS (°C)	DEGREE FAHRENHEIT	°F=(1.8 x °C)+32



WIND DATA

NOTE: WIND SPEED IS INDICATED IN KNOTS.

WIND COVERAGE: SEE DATA TABLES ON THIS SHEET.

SOURCE: ALASKA STATE CLIMATE CENTER. EEK ALASKA WHICH IS LOCATED 30 NAUTICAL MILES NW OF QUINHAGAK.

PERIOD: JAN 1992 TO JAN 1993

MODIFICATION TO STANDARDS

ITEM	EXISTING	STANDARD	NEW
WIND COVERAGE (10.5 KNOTS)	76.84%	95.0%	76.63%

NOTE: METRIC DIMENSIONS ARE IN ACCORDANCE WITH FAA AC 150/5300-13. ENGLISH UNIT CONVERSIONS ARE APPROXIMATE AND ARE FOR INFORMATION ONLY.

BASIC DATA TABLE
RUNWAY DATA

ITEM	RUNWAY 04/22 EXISTING	RUNWAY 04/22 FUTURE	RUNWAY 12/30 EXISTING	RUNWAY 12/30 FUTURE
% WIND COVERAGE (10.5 KNOT)	76.84%			76.63%
% WIND COVERAGE (13.0 KNOT)	85.79%			84.42%
INSTRUMENT RUNWAY	NONE			NONE
RUNWAY SURFACE	GRAVEL			GRAVEL
PAVEMENT STRENGTH (LBS.)	N/A			N/A
APPROACH SURFACES	20:1			20:1
VISIBILITY MINIMUM	VISUAL EXCLUSIVELY			VISUAL EXCLUSIVELY
RUNWAY LIGHTING	MIRL			MIRL
RUNWAY MARKING	NONE			NONE
VISUAL AND INSTRUMENT NAVIGATION AIDS	VASI			NONE
RUNWAY DIMENSIONS	792mX18m			950mx18m
	(2,600'X60')			(3,116.8'x59')
RUNWAY SAFETY AREA DIMENSIONS	907mX21m			1,1094mx36m
	(2,975'X78')			(3,589.2'x118.1'
RUNWAY OBJECT FREE AREA DIMENSIONS	N/A			1,094mx120m
	N/A			(3,589.2'x393.7'
RUNWAY OBSTACLE FREE ZONE DIMENSIONS	N/A			1,238mx75m
	N/A			4,061.7'x246.1'
RUNWAY END COORDINATES (NAD 83)				
RUNWAY 12 LAT.	-			59°45'26"N
LONG.	-			161°50'59"W
RUNWAY 30 LAT.	-			59°45'05"N
LONG.	-			161°50'15"W
RUNWAY PROTECTION ZONE DIMENSIONS				
INNER WIDTH	76 m (250')			150 m (492')
OUTER WIDTH	137 m (450')			210 m (689')
LENGTH	305 m (1000')			300 m (984')
AIRCRAFT APPROACH CATEGORY	A			B
AIRCRAFT DESIGN GROUP	I			I

BASIC DATA TABLE
AIRPORT DATA

ITEM		EXISTING	FUTURE
AIRPORT ELEVATION (M.S.L.)		3.0m (10')	12m (39.4')
AIRPORT REFERENCE POINT (NAD 83)	LAT.	-	59°45'15"N
	LONG.	-	161°50'37"W
TAXIWAY LIGHTING		NONE	MITL
RAMP LIGHTING		NONE	NONE
MEAN MAX. TEMPERATURE, HOTTEST MONTH (JULY)		14.4°C (58°F)	14.4°C (58°F)
MAGNETIC DECLINATION, YEAR		18°30'E, 1954	16°30'E, 1996
AIRPORT AND TERMINAL NAVIGATION AIDS		NONE	NONE

LEGEND

ITEM	EXISTING	FUTURE
PROPERTY LINE		
BUILDING RESTRICTION LINE		BRL
AVIATION & HAZARD EASEMENT		
AIRPORT REFERENCE POINT (A.R.P.)		
WIND CONE AND SEGMENTED CIRCLE		
CONTOURS		25
ROADWAYS		
BUILDINGS		
ROTATING BEACON		
SHORELINE		
RUNWAY		
TAXIWAY		
THRESHOLD LIGHTS		

FILE: P:\07072.083\QUN-02.DWG
DATE: 04/16/97 1=1 V=1 CDS

AIRPORT LAYOUT PLAN CONDITIONALLY APPROVED
By: FAA AIRSPACE REVIEW NUMBER: 97AAL-034-NRA
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600
DATE: 5/1/97

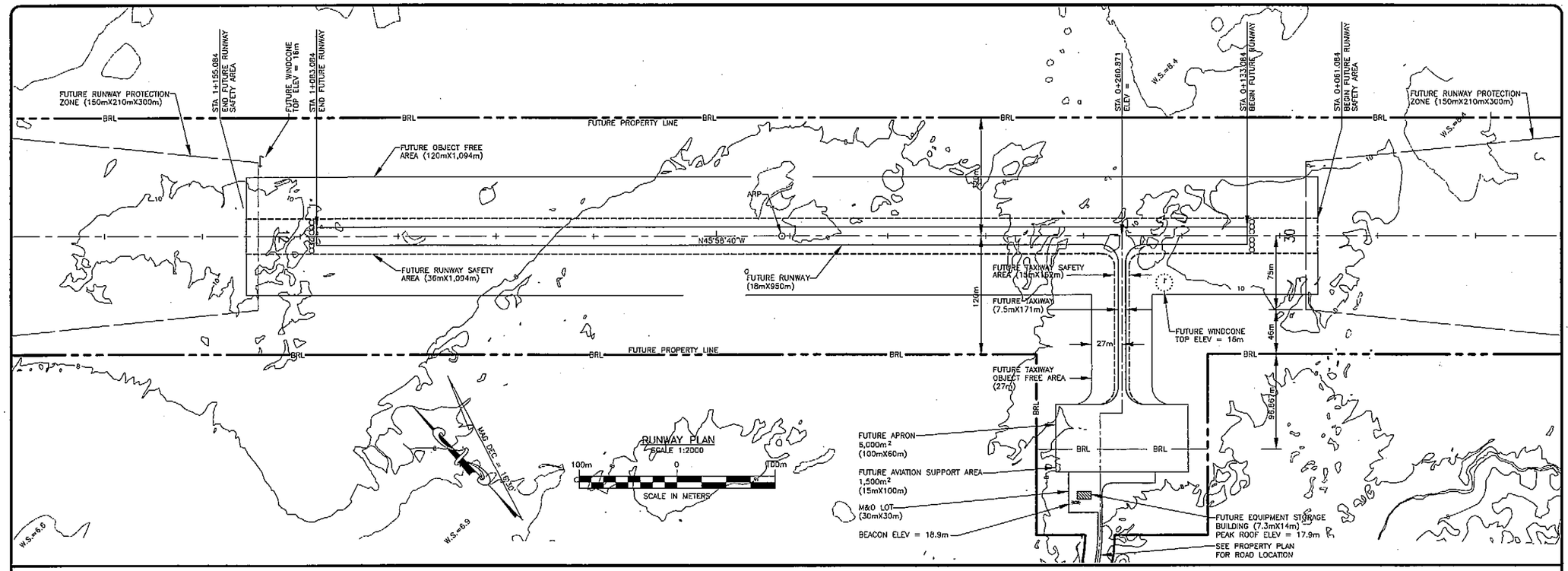
BY	DATE	REVISIONS

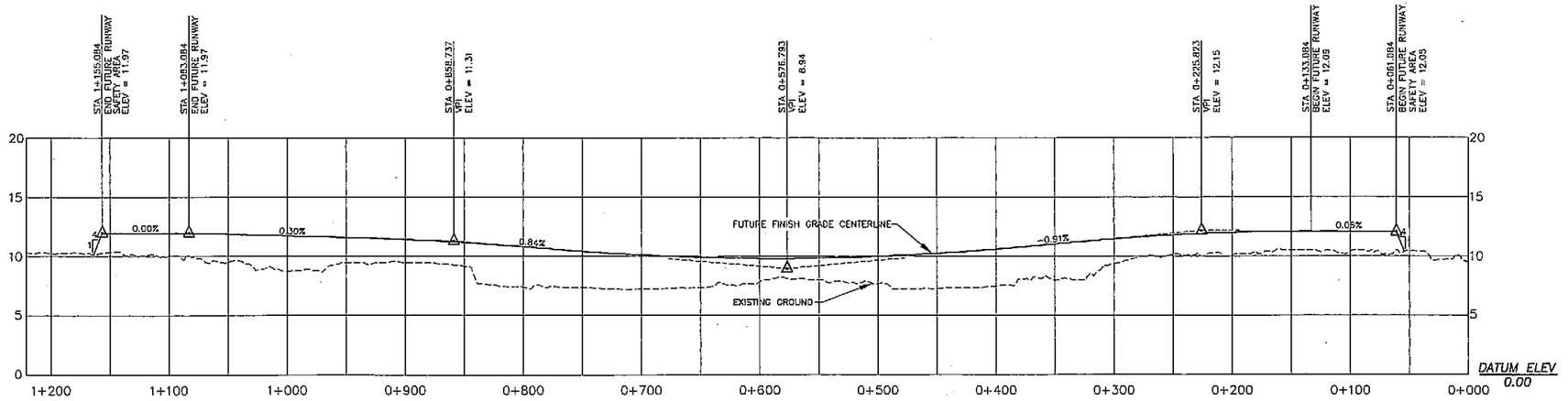
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION-DESIGN AND CONSTRUCTION-AVIATION
APPROVED: STEVE VAN HORN, P.E. — DESIGN SECTION CHIEF
APPROVED: MIRIAM M. TANAKA, P.E. — PROJECT MANAGER

DATE 4.22.97
DESIGN JG
DRAWN SW
CHECKED DH

QUINHAGAK AIRPORT
AIRPORT LAYOUT PLAN
VICINITY MAP AND DATA TABLES

SHEET 2 OF 8





RUNWAY 12/30
SCALE
HORIZ = 1:2000
VERT = 1:5

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DATE: 04/16/97 1=1 Vw.5 COS

AIRPORT LAYOUT PLAN CONDITIONALLY APPROVED
By: FAA AIRSPACE REVIEW NUMBER: 97AAL-034-NRA
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600
DATE: 4/1/97

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION—DESIGN AND CONSTRUCTION—AVIATION

APPROVED: STEVE VAN HORN, P.E. — DESIGN SECTION CHIEF
APPROVED: MIRIAM M. YANOSA, P.E. — PROJECT MANAGER

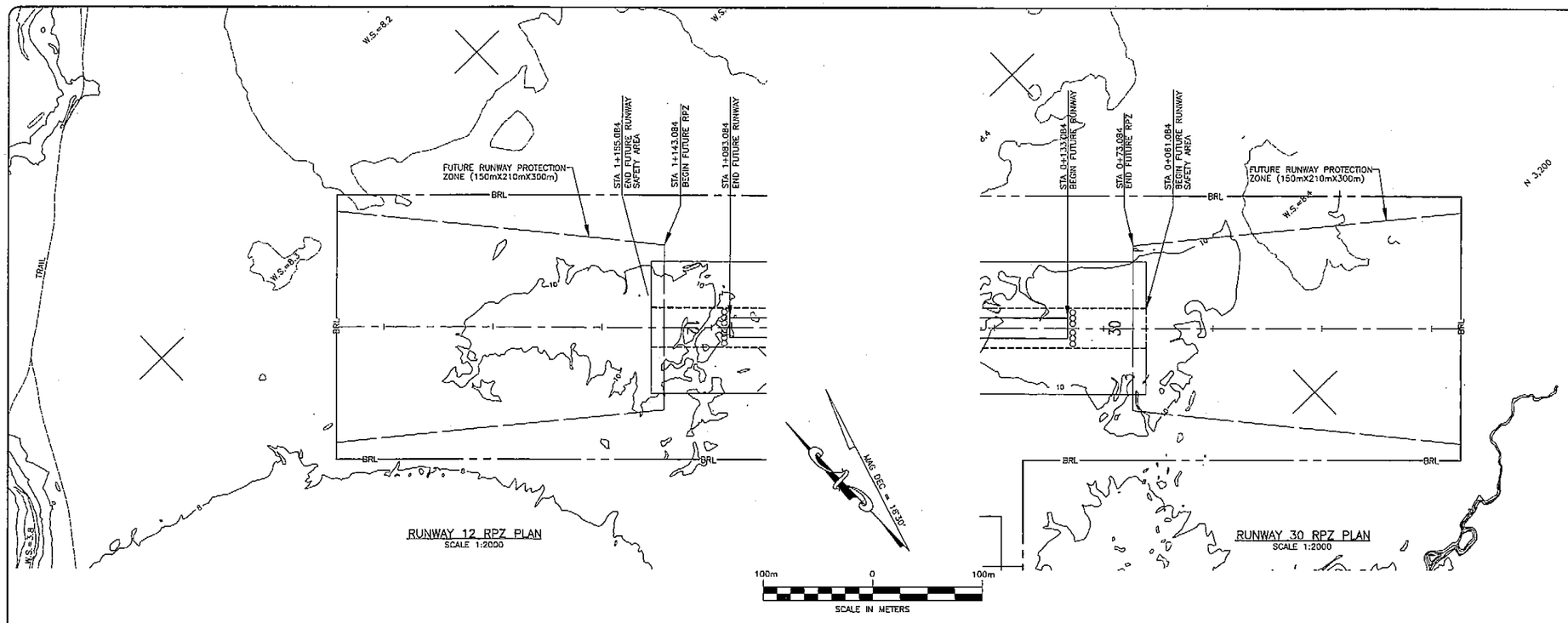
DATE 4.17.97
DESIGN TG
DRAWN SW
CHECKED DH

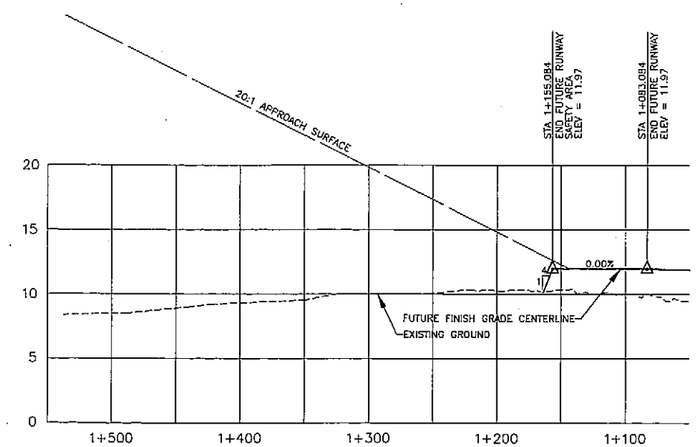
QUINHAGAK AIRPORT

AIRPORT LAYOUT PLAN

PLAN AND PROFILE

SHEET 3 OF 8





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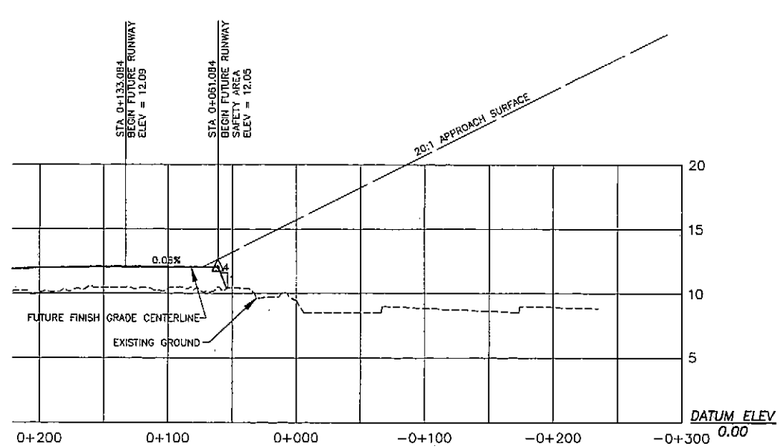
VERT = 1:5



RUNWAY 30
SCALE
HORIZ = 1:2000
VERT = 1:5

FILE: P:\07072.083\QUIN-04.DWG
DATE: 04/16/97 1=1 V=.5 CDS

AIRPORT LAYOUT PLAN APPROVED

By: _____ FAA AIRSPACE REVIEW NUMBER: 97AAL-034-NRA
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600

DATE: 5/1/97

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION-DESIGN AND CONSTRUCTION-AVIATION

APPROVED: _____ STEVE VAN HORN, P.E. DESIGN SECTION CHIEF
APPROVED: _____ MIRIAM M. KANARR, P.E. PROJECT MANAGER

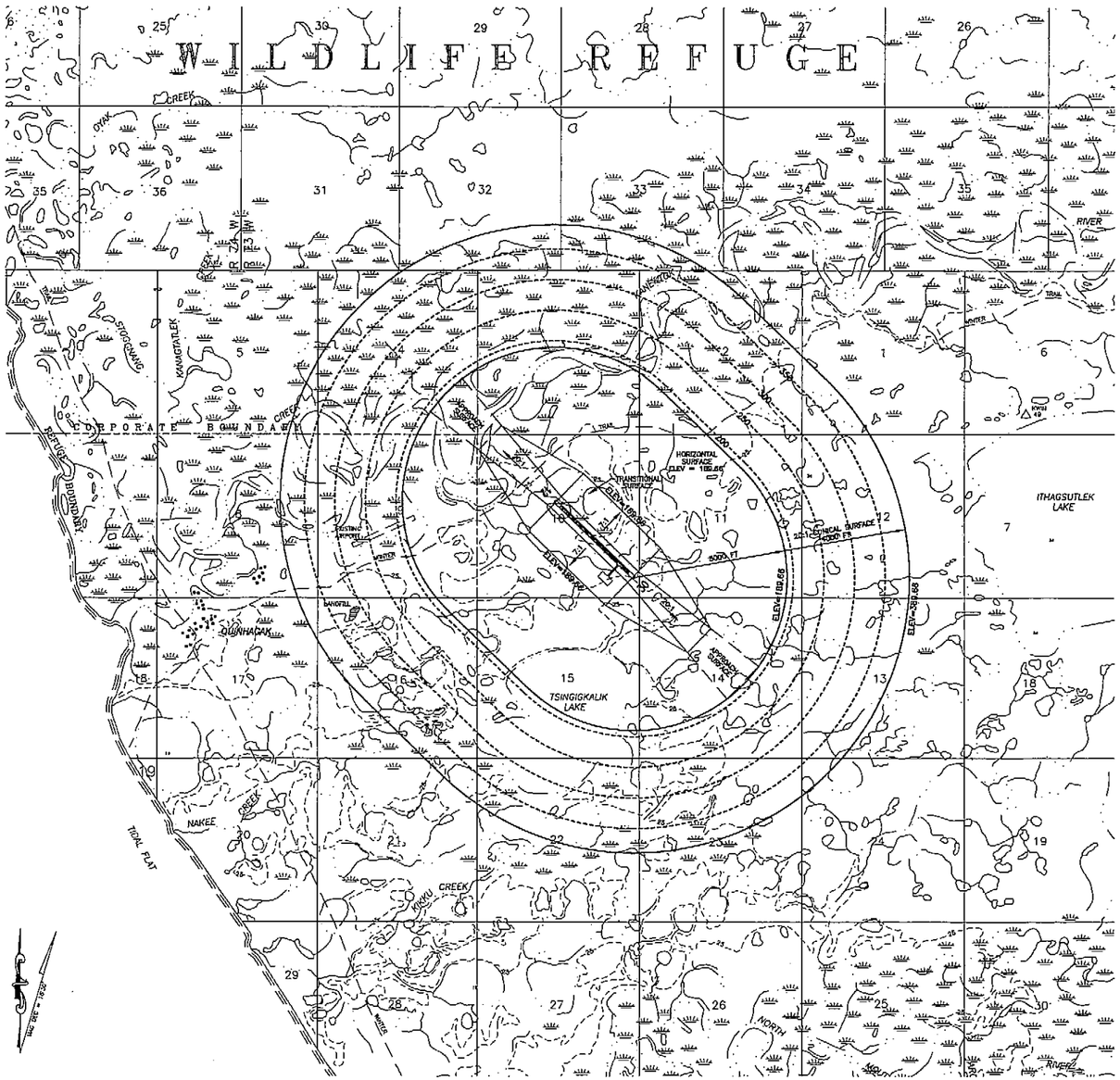
DATE 4-12-97
DESIGN TG
DRAWN SW
CHECKED DH

QUINHAGAK AIRPORT

AIRPORT LAYOUT PLAN

RUNWAY 12/30 RPZ PLAN AND PROFILE

SHEET 4 OF 8



LEGEND

X FEET SPOT ELEVATIONS

NOTES

1. AIRPORT AND RUNWAY ELEVATIONS ARE 39.66'
2. THIS DRAWING IS BASED ON USGS QUAD GOODNEWS BAY (D-8 & C-8), ALASKA.

NOTE:

DIMENSIONS AND ELEVATIONS ARE IN FEET.

OBSTRUCTION DATA TABLE

NUMBER	PENETRATION DISTANCE (FEET)	DESCRIPTION
NONE	NONE	NONE

FAA AIRSPACE REVIEW NUMBER: 97AAL-034-NRA

AIRPORT LAYOUT PLAN CONDITIONALLY APPROVED

BY: _____
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600

DATE: 6/1/97

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION-DESIGN AND CONSTRUCTION-AVIATION

APPROVED: _____ STEVE VAN HORN, P.E. DESIGN SECTION CHIEF

APPROVED: _____ MIRIAM M. TANAKA, P.E. PROJECT MANAGER

DATE 4.22.97
DESIGN TG
DRAWN SW
CHECKED DH

QUINHAGAK AIRPORT

AIRPORT LAYOUT PLAN

F.A.R. PART 77 SURFACES

SHEET 5 OF 8

FILE: P:\07072.083\QUIN-05.DWG
DATE: 04/16/97 1=1 V=.0667 COS

NOTES

1. BEARINGS SHOWN ARE LOCAL PLANE BEARINGS ORIENTED TO THE BASIS OF BEARINGS AND DISTANCES SHOWN ARE REDUCED TO HORIZONTAL GROUND DISTANCES.
2. BOUNDARIES OTHER THAN THOSE BETWEEN RECOVERED CORNERS, AS INDICATED HEREON, ARE BASED UPON RECORD INFORMATION.
3. DISTANCES SHOWN ARE GROUND DISTANCES IN METERS, FOLLOWED BY THE DISTANCE IN FEET SHOWN IN BRACKETS []. METER TO FOOT CONVERSION FACTOR IS 3937/1200.
4. BEARINGS AND DISTANCES SHOWN ARE MEASURED, UNLESS NOTED OTHERWISE.
5. THE BASIS OF BEARING FOR THIS SURVEY IS THE LINE BETWEEN USLM 876, A FOUND BUREAU OF LAND MGMT. MONUMENT, AND THE FOUND STATE OF ALASKA REFERENCE MARK MONUMENT LOCATED 500' RIGHT OF THE CENTERLINE OF EXISTING RUNWAY STA. 29+68.51. THE NAD 83 TRUE MEAN BEARING OF THIS LINE IS N 61°24'50" E, COMPUTED FROM THE STATE OF ALASKA, DEPT. OF PUBLIC WORKS, DIVISION OF AVIATION, SURVEY CONTROL SHEET FOR QUINHAGAK AIRPORT, DATED 04-15-74.
6. GEODETIC COORDINATES ARE COMPUTED FROM USLM 876:
   LATITUDE: 59°45'05.741" N
   LONGITUDE: 161°54'19.141" W (NAD 83)
7. PARCELS 2, 3, AND 4 ARE FOR RIGHT OF WAY USES.
8. THE MINIMUM CLOSURE OF ALL TRAVERSES MEETS OR EXCEEDS 1:10,000.

SURVEYOR'S CERTIFICATE

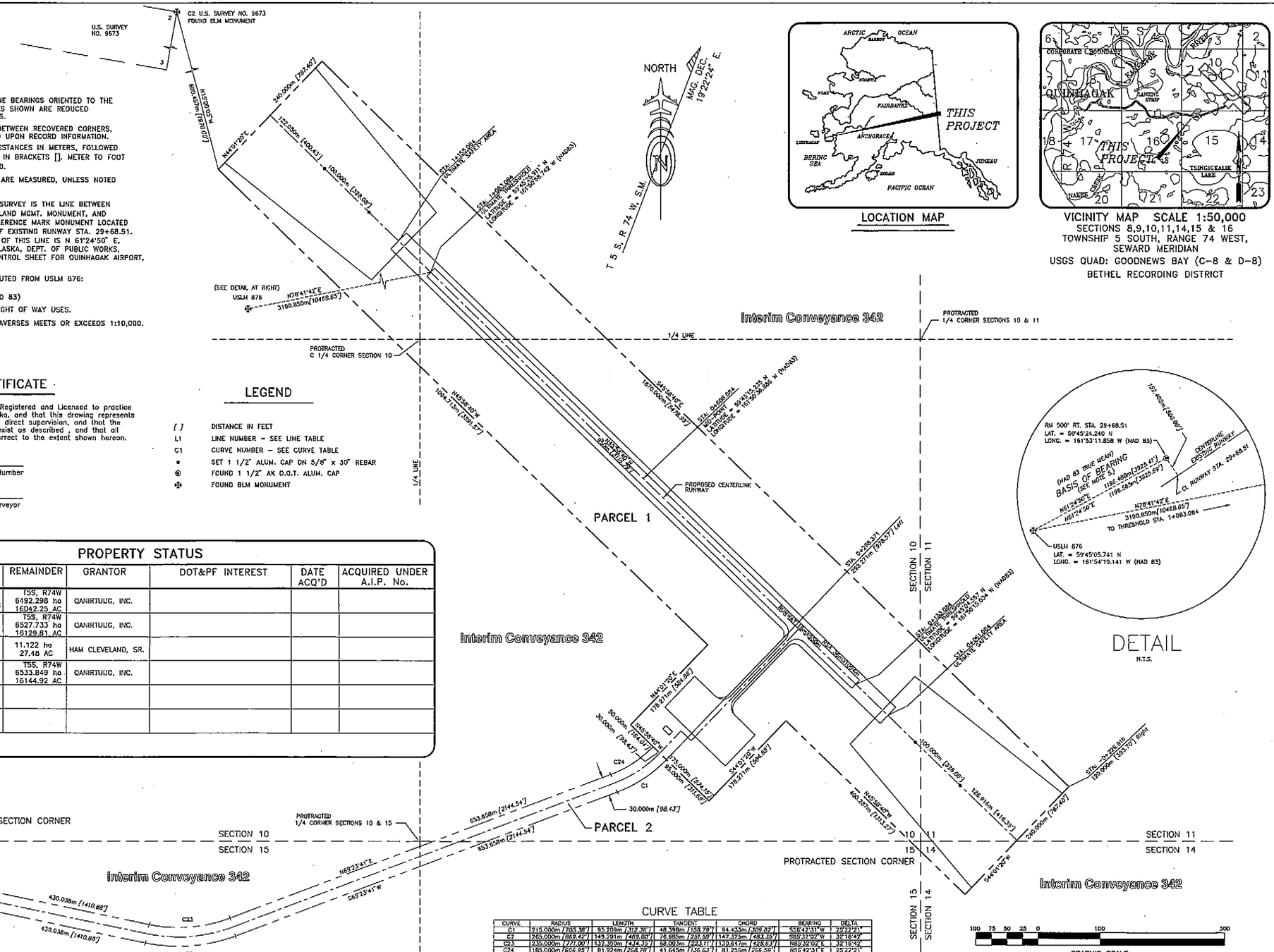
I hereby certify that I am properly Registered and Licensed to practice Land Surveying in the State of Alaska, and that this drawing represents a survey made by me or under my direct supervision, and that the monuments shown hereon actually exist as described , and that all dimensions and other details are correct to the extent shown hereon.

Date Registration Number

Lyle G. Riggins, Registered Land Surveyor

LEGEND

[ ]	DISTANCE IN FEET
L1	LINE NUMBER – SEE LINE TABLE
C1	CURVE NUMBER – SEE CURVE TABLE
•	SET 1 1/2" ALUM. CAP ON 5/8" x 30" REBAR
◉	FOUND 1 1/2" AK D.O.T. ALUM. CAP
✠	FOUND BLM MONUMENT



LOCATION MAP

VICINITY MAP SCALE 1:50,000
SECTIONS 8,9,10,11,14,15 & 16
TOWNSHIP 5 SOUTH, RANGE 74 WEST,
SEWARD MERIDIAN
USGS QUAD: GOODNEWS BAY (C-8 & D-8)
BETHEL RECORDING DISTRICT

DETAIL
N.T.S.

PROPERTY STATUS

PARCEL NUMBER	LARGER PARCEL	TAKE	REMAINDER	GRANTOR	DOT&PF INTEREST	DATE ACQ'D	ACQUIRED UNDER A.I.P. No.
1	T5S, R74W 6535.500 ha 16149.00 AC	43.200 ha 106.75 AC	T5S, R74W 6492.298 ha 16042.25 AC	QANIRTUUQ, INC.			
2	T5S, R74W 6535.500 ha 16149.00 AC	7.767 ha 19.19 AC	T5S, R74W 6527.733 ha 16129.81 AC	QANIRTUUQ, INC.			
3	12.679 ha 31.33 AC	1.557 ha 3.85 AC	11.122 ha 27.48 AC	HAM CLEVELAND, SR.			
4	T5S, R74W 6535.500 ha 16149.00 AC	1.651 ha 4.08 AC	T5S, R74W 6533.849 ha 16144.92 AC	QANIRTUUQ, INC.			

CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	215.000m [705.38']	95.209m [312.36']	48.398m [158.79']	94.433m [309.83']	S56°42'31"W	25°22'21"
C2	265.000m [869.42']	149.291m [489.80']	76.685m [251.59']	147.325m [483.35']	S85°32'02"W	32°16'42"
C23	235.000m [771.00']	132.500m [434.75']	68.080m [223.17']	130.647m [428.63']	N85°32'02"E	32°16'42"
C24	185.000m [606.95']	81.924m [268.78']	41.645m [136.63']	81.255m [266.58']	N56°42'31"E	25°22'21"

100 75 50 25 0 100 300
GRAPHIC SCALE

AIRPORT LAYOUT PLAN CONDITIONALLY APPROVED

By: FAA AIRSPACE REVIEW NUMBER: 97AAL-34-NRA
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600

DATE: 4/4/97

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION–DESIGN AND CONSTRUCTION–AVIATION

APPROVED: _____ STEVE VAN HORN, P.E. DESIGN SECTION CHIEF
APPROVED: _____ MIRIAM M. TAKADA, P.E. PROJECT MANAGER

DATE 04/14/97
DESIGN OH
DRAWN GJR
CHECKED LGR

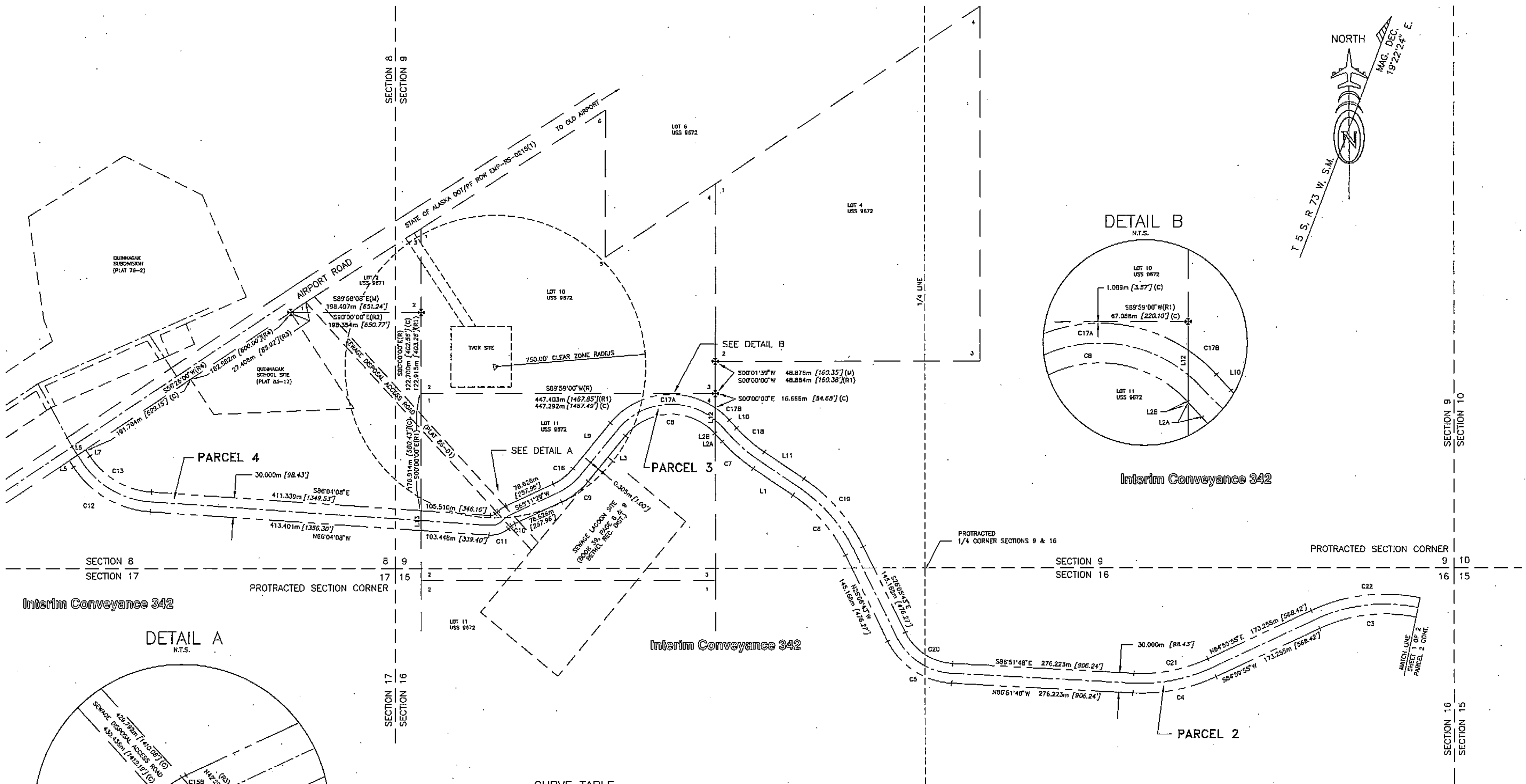
QUINHAGAK AIRPORT

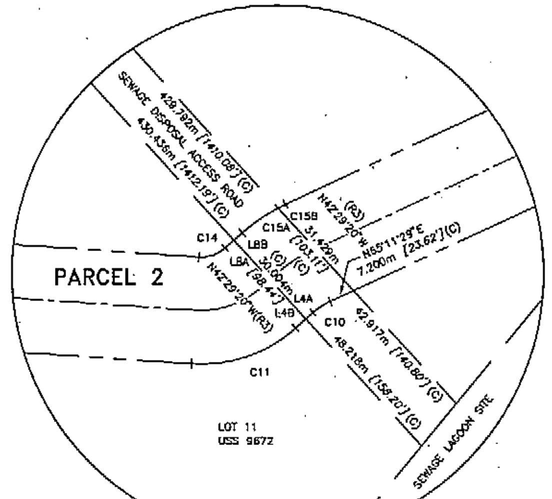
AIRPORT PROPERTY PLAN

SCALE: 3000

SHEET 6 OF 8

FILE: QUIN-6-7.DWG
DATE: 04/16/97 1=3 v=1 dveb





CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C3	235.000m [771.00']	150.421m [493.51']	77.888m [255.54']	147.866m [485.12']	S83°20'09"W	36°40'28"
C4	265.000m [869.42']	130.142m [426.97']	66.411m [217.88']	128.838m [422.70']	S79°04'04"W	28°08'17"
C5	115.000m [377.30']	121.869m [399.83']	67.360m [221.00']	116.246m [381.38']	N56°30'16"W	60°43'05"
C6	235.000m [771.00']	122.462m [401.78']	62.656m [205.56']	121.081m [397.25']	N41°04'27"W	29°51'28"
C7	265.000m [869.42']	62.448m [204.88']	31.369m [102.92']	62.304m [204.41']	N49°15'08"W	13°30'07"
C8	90.000m [295.28']	153.832m [504.70']	103.410m [339.27']	135.778m [445.46']	S88°31'58"W	97°55'56"
C9	115.000m [377.30']	51.432m [168.74']	26.153m [85.80']	51.005m [167.34']	S52°22'45"W	25°37'29"
C10	20.000m [65.62']	5.828m [19.12']	2.935m [9.63']	5.807m [19.05']	S56°50'38"W	16°41'41"
C11	40.000m [131.23']	31.719m [104.06']	16.746m [54.94']	30.895m [101.36']	S71°12'50"W	45°26'04"
C12	152.618m [500.71']	139.849m [458.82']	75.267m [246.94']	135.008m [442.94']	N59°49'04"W	52°30'08"
C13	122.618m [402.29']	112.359m [368.63']	60.471m [198.40']	108.469m [355.87']	S59°49'04"E	52°30'08"
C14	10.000m [32.81']	7.930m [26.02']	4.187m [13.74']	7.724m [25.34']	N71°12'50"E	45°26'04"
C15A	50.000m [164.04']	12.223m [40.10']	6.142m [20.15']	12.192m [40.00']	N55°29'59"E	14°00'22"
C15B	50.000m [164.04']	2.346m [7.70']	1.173m [3.85']	2.346m [7.70']	N63°50'49"E	02°41'19"
C16	85.000m [278.87']	38.015m [124.72']	19.331m [63.42']	37.699m [123.68']	S52°22'45"W	25°37'29"
C17A	120.000m [393.70']	176.776m [579.97']	108.818m [357.01']	161.220m [528.94']	N81°46'08"E	84°24'16"
C17B	120.000m [393.70']	28.333m [92.96']	14.232m [46.69']	28.267m [92.74']	S49°15'54"E	13°31'40"
C18	235.000m [771.00']	55.379m [181.69']	27.818m [91.27']	55.250m [181.27']	S49°15'08"E	13°30'07"
C19	265.000m [869.42']	138.096m [453.07']	70.654m [231.80']	136.539m [447.96']	S41°04'27"E	29°51'28"
C20	85.000m [278.87']	90.077m [295.53']	49.788m [163.35']	85.921m [281.89']	S56°30'16"E	60°43'05"
C21	235.000m [771.00']	115.409m [378.64']	58.893m [193.22']	114.253m [374.85']	N79°04'04"E	28°00'17"
C22	265.000m [869.42']	169.624m [556.51']	87.831m [288.16']	166.743m [547.06']	N83°20'09"E	36°40'28"

LINE TABLE

LINE	DIRECTION	DISTANCE
L1	N56°00'11"W	72.705m [238.53']
L2A	N42°30'04"W	15.394m [50.51']
L2B	N42°30'04"W	1.035m [3.40']
L3	S39°34'00"W	89.330m [293.08']
L4A	S48°29'48"W	2.650m [8.69']
L4B	S48°29'48"W	3.859m [12.66']
L5	N33°34'00"W	11.814m [38.76']
L6	N56°26'00"E	30.000m [98.43']
L7	S33°34'00"E	11.814m [38.76']
L8A	N48°29'48"E	3.343m [10.97']
L8B	N48°29'48"E	3.166m [10.39']
L9	N39°34'00"E	89.330m [293.08']
L10	S42°30'04"E	16.429m [53.90']
L11	S56°00'11"E	72.705m [238.53']
L12	S00°00'00"E	39.477m [129.52']
L13	S00°00'00"E	30.071m [98.66']

LEGEND

[ ]	DISTANCE IN FEET
L1	LINE NUMBER – SEE LINE TABLE
C1	CURVE NUMBER – SEE CURVE TABLE
(R1)	RECORD PER PLAT OF U.S. SURVEY NO. 9672
(R2)	RECORD PER PLAT OF U.S. SURVEY NO. 9671
(R3)	RECORD PER PLAT NO. 86-01
(R4)	RECORD PER PLAT NO. 85-17
(C)	COMPUTED SURVEY DATA
✠	BLM MONUMENT FOUND

100 75 50 25 0 100 300
GRAPHIC SCALE

FILE: QUIN-5-7.DWG
DATE: 04/16/97 1=3 v=1 daveb

AIRPORT LAYOUT PLAN CONDITIONALLY APPROVED
By: FAA AIRSPACE REVIEW NUMBER: 97AAL-34-NRA
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600
DATE: 8/1/97

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION–DESIGN AND CONSTRUCTION–AVIATION

APPROVED: STEVE VAN HORN, P.E. — DESIGN SECTION CHIEF
APPROVED: MIRIAM M. TANAKA, P.E. — PROJECT MANAGER

DATE 04/14/97
DESIGN DH
DRAWN GJR
CHECKED LGR

QUINHAGAK AIRPORT
AIRPORT PROPERTY PLAN
SCALE: 3000

SHEET 7 OF 8

QUINHAGAK AIRPORT

AIRPORT LAYOUT PLAN NARRATIVE REPORT

A. Purpose

This Narrative Report is included with the Airport Layout Plan for Quinhagak, Alaska, in accordance with Federal Aviation Administration (FAA) Airport Design Advisory Circular (AC) 150/5300-13, Appendix 7. The design of this project is being completed in SI (metric) units and all measurements and units are in accordance with ASTM E 380-93. Metric dimensions for future construction items are in accordance with FAA AC 150/5300-13. English dimensions are approximate except when used for existing conditions and are for information only. The rationale for improvements to the Quinhagak Airport are outlined in this report.

B. Introduction

The existing Quinhagak Airport is located approximately 366 m (1,200 ft) northeast of the outskirts of Quinhagak, Alaska, and approximately 100 km (63 mi) south of Bethel, Alaska. The existing airport was built in 1973 by the State of Alaska on land now leased from the Qanirtuuq Native Corporation. Long-distance transportation in the area is limited to air and seasonal barge access. The City of Quinhagak is near the mouth of the Kanektok River, and the airport was constructed within the active river floodplain using adjacent alluvial deposits for fill material. Flooding by the Kanektok River has enlarged the material borrow pits and eroded the north side of the runway embankment. The new airport will be constructed on an upland plain east of the existing airport and about 2,500 m (8,000 ft) from the community.

In 1995 the population of Quinhagak was 544. The city has grown at the rate of approximately 2% for the last 35 years, and that rate of increase has been used to forecast future airport activity.

The 1996 "Alaska Aviation System Plan" (AASP) classifies the Quinhagak Airport as a "community airport," one that is the "primary land or water access point to a small rural community of at least 25 permanent year-round residents without other reliable year-round access."

Air taxi operators based out of Bethel and one local owner are the main users of the Quinhagak Airport. Approximately 14% of air traffic at Quinhagak is non-local general aviation. Air carriers currently serving Quinhagak are Arctic Circle Air Service, Arctic Transportation Service, Bush Air, Camai Air, Era Aviation, Fox Air, Hageland Aviation Services, Larry's Flying Service, Manokotak Air, Kuskokwim Aviation, and Yute Air.

The medical clinic in Quinhagak reports that one to two patients a month require transfer to the regional hospital in Bethel. Camai Air or Yute Air are called for medevac purposes. A Cessna 207 is used for the 30-minute medevac flight.

The Quinhagak school, Kuinerarmiut Elitnaurviat, is part of the Lower Kuskokwim School District. Approximately 24 students per week from October through February and 12 students per week from February through April are transported to other villages for school-related activities. The school uses Kuskokwim Aviation, which makes two or more trips to carry participating students and teachers.

The average number of enplanements reported between 1983 – 1993 was 1,829. The number reported for 1993 was 1,868. Figures are from operators voluntarily filing DOT form 298-C schedule 11 or E1 and are probably underestimates, considering that approximately 700 of the enplanements can be attributed to school children alone.

Between January 1993 and June 1994, 342,853 kg (755,183 lbs) of mail was transported to Quinhagak from Bethel.

Using a growth rate of 2%, as described above, annual operations were estimated as shown in Table 1.

Table 1
Forecast of Future Air Operations

Item	0-5 Years	6-10 Years	11-20 Years
Total Annual Operations	6,529	7,050	8,039
Annual Local Operations	5,731	6,190	7,057
Annual Itinerant Operations	798	860	982
Annual Enplanements	2,013	2,169	2,477
Annual Instrument Approaches	0	0	0
Annual Scheduled Operations	5,731	6,190	7,057
Annual Non-Scheduled Operations	798	860	982

Three aircraft owned by Kuskokwim Aviation are based in Quinhagak. Single engine aircraft such as the Cessna 206, Cessna 207, and the Piper Cherokee 6 are the predominant aircraft using the airport. Scheduled services are provided by one air carrier that uses the DeHavilland Twin Otter and Twin Islander. All operators interviewed for the master plan indicated their intent to upgrade their fleets to twin engine aircraft such as the DeHavilland Twin Otter and Piper Navajo. The new airport will make the use of light-twin Category B-I aircraft feasible, and this is the critical aircraft category used in the design.

D. Stage Development

Development of the Quinhagak Airport will be in two stages: near term (0 – 3 years) and long term (4 – 20 years). The primary objectives of current airport development are relocating the airport away from the Kanektok River floodplain and upgrading airport components to Category B-I standards. In the long term, a crosswind runway may be necessary (percent wind coverage at both 10.5 and 13 knots is below 95%), but one has not been scheduled at this time.

Near-Term (0 – 3 years)

Near-term development will construct a new Quinhagak Airport and aviation support area in compliance with B-I standards, on an upland plain east of the existing runway. Components that will be constructed are a new runway, apron and aviation support area, and access road. Near term development will cost approximately $4,232,000 dollars.

1.

Construct a new embankment for a safety area 35 m (120 ft) wide and extending 72 m (240 ft) beyond the runway ends. Gravel a runway surface 950 m (3,117 ft) long and 18 m (60 ft) wide with a 3 m (10 ft) wide shoulder.

2.

Construct a new embankment for a taxiway safety area 15 m (49 ft) wide and 58 m (190 ft) long because of overlapping safety areas. Gravel a taxiway surface 7.5 m (25 ft) wide and 60 m (200 ft) long from the face of the apron to the centerline of the runway.

3.

Construct a new embankment for an apron 5,574 m2 (60,000 ft2 or 200 ft by 300 ft), an aviation support area approximately 30 m by 91 m (100 ft by 300 ft) contiguous to the apron, and a pad 1,025 m2 (11,030 ft2) for the segmented circle.

4.

Construct a new embankment for an additional maintenance and operations lot, 30 m by 30 m (100 ft by 100 ft), adjacent to the lease lots.

5.

Construct a new embankment for an access road 6 m (18 ft) to 3 m (9 ft) wide and approximately 3,650 m (12,000 ft) long.

6.

Other work will include installation of medium intensity lighting along the runway, construction of a new snow removal equipment building, installation of a rotating beacon, installation of a segmented circle with one lighted wind cone and one unlighted wind cone, and the purchase of a new grader.

Long-Term (4 – 20 years) Development

Long-term development will add a crosswind runway to the new Quinhagak Airport if it is found necessary.

E. Design Rationale

1. Airport Reference Code

The existing runway is designed to A-I standards. Near-term development at the new airport will be designed for B-I standards.

2. Wind Coverage

Wind data is not available for Quinhagak. However, a wind data frequency summary, using data from the nearby community of Eek, indicates the prevailing winds come from the north-northeast and north-northwest and, to a lesser extent, from the south-southeast. Residents of Quinhagak and pilots flying into Quinhagak Airport report that the prevailing wind is generally from the north. The strongest winds are reported to come from the southeast. There is also a seasonal component to wind direction which is strongly affected by the Bering Sea to the west and the Kilbuck Mountains to the southeast. According to the wind coverage at the future runway will be 76.63% @ 10.5 knots and 84.42% @ 13.0 knots. FAA recommends a crosswind runway for airports with less than 95% coverage from a single runway and that experience winds that exceed a certain velocity. These velocities depend on the size of the aircraft. This information indicates that choosing a single alignment for the recommend wind coverage is difficult near Quinhagak. Although not scheduled at this time, a crosswind runway may be considered in the future.

3. Runway

According to the FAA AC 150/5325-4 for design group B-I aircraft, the runway must be a minimum of 948 m (3,110 ft) long. According to AC 150/5300-13, the runway must be 18 m (60 ft) wide with a 3 m (10 ft) wide shoulder. The safety area must be a minimum of 36 m (120 ft) wide and extend 72 m (240 ft) beyond the runway ends. There must be a runway protection zone at both runway ends. The zone must be 300 m (1000 ft) long by 150 m (500 ft) wide 60 m (200 ft) from the runway end, and 210 m (700 ft) wide 570 m (1,200 ft) from the runway end. The runway obstacle free area (ROFA) must be 120 m (400 ft) wide and extend 60 m (200 ft) beyond each end of the runway.

4. Taxiway

The runway must be connected to the apron and support area by a taxiway 7.5 m (25 ft) wide and 60 m (200 ft) long from the face of the apron to the centerline of the runway. The taxiway safety area must be 13.7 m (45 ft) wide but only 58 m (190 ft) long because of overlapping safety areas.

5. Apron

State regulation requirements the apron to be 5,574 m2 (60,000 ft2 or 200 ft by 300 ft). An aviation support area approximately 30 m by 91 m (100 ft by 300 ft) should be developed contiguous to the apron. This configuration for apron and lease lots was developed as the best way to accommodate future expansion at inaccessible bush communities. The aviation support area should be large enough to accommodate three lease lots 30 m by 46 m (100 ft by 150 ft) including 15 m (50 ft) on the airside of the building restriction line (BRL). An additional maintenance and operations lot, 30 m by 30 m (100 ft by 100 ft), should be developed adjacent to the lease lots.

In the Assurances for Airport Sponsors (c. 24; pg. 12), FAA requires the airport sponsor to make the airport as self-sustaining as possible. With few opportunities for revenue generation at bush community airports, it is prudent to encourage the development of lease lots up to grade with the apron. Lease lot use seems to depend on whether the apron is farther than 0.8 km (0.5 mi) from the community. The greater the distance from the community, the more residents rely on facilities at the airport rather than on facilities in town to wait for flights and handle or store cargo. If lease lots are not developed at the time of airport construction, the cost of their development would become prohibitive. Construction of lease lots at a future date would involve remobilizing construction equipment and crews from outside the community, reopening materials sources, and purchasing and barging a smaller quantity of surfacing material.

For this reason, it is recommended that the apron design allow for five aircraft tie-downs (two for aircraft based at the airport and three for itinerant aircraft), a cargo and passenger loading area, and a taxi lane. Because of the small volume expected, parking for ground transportation can be accommodated within the aviation support area. This apron configuration works well for small, rural airports where one apron serves all the airport needs. In the future, if larger aircraft such as the DC-6 (design group III) were to use the airport to deliver cargo or transport commercial fish catches, the proposed apron dimensions would be adequate to allow aircraft to taxi onto it and turn around.

6. Access Road

The access road would be 6 m (18 ft) to 3 m (9 ft) wide and about 3,650 m (12,000 ft) long. The road would have two 3 m (9 ft) wide lanes between the community, just west of the clinic at Arolik Avenue, and the landfill. It would cross the existing landfill access track and connect to the apron (the existing "road" to the landfill crosses private property, is not platted, and would not provide dedicated public access to the airport). The access road would have only one 3 m (9 ft) wide lane with turnouts between the landfill and the apron.

Quinhagak Airport Design Standards Existing Runway 12/30 and New Runway 04/22			
Item	Existing Condition	Standard	New
Runway Length	792m(2,600 ft)	948m(3,110 ft)	950m(3,117 ft)
Runway Width	15m(50 ft)	18m(60 ft)	18m(60 ft)
Runway Safety Area Width	21m(70 ft)	36m(120 ft)	36m(120 ft)
Runway Safety Area Length	907m(2,975 ft)	1,092m(3,580 ft)	1,092m(3,580 ft)
Taxiway Width	n/a	7.5m(50 ft)	7.5m(50 ft)
Taxiway Safety Area Width	n/a	15m(49 ft)	15m(49 ft)
Taxiway OFA Width	n/a	27m(89 ft)	27m(89 ft)
Runway Centerline to Edge of Aircraft Parking	n/a	60m(120 ft)	60m(120 ft)
RPZ Length	n/a	300m(1000 ft)	300m(1000 ft)
RPZ Inner Width	n/a	150m(500 ft)	150m(500 ft)
RPZ Outer Width	n/a	210m(700 ft)	210m(700 ft)
Approach Slope Angle	20:1	20:1	20:1

F. Property Status

The existing Quinhagak Airport is located on land leased from the Qanirtuuq Native Corporation. The RPZ on the southwest end of the existing runway crosses a Native allotment claim and has no right of way. A property plan has been completed for the new airport and access road. The State of Alaska is pursuing acquisition of this land. The State of Alaska will acquire all lands fee simple as necessary to enclose the airport as planned. Acquisition of this land will give the state all lands necessary to construct the new airport and access road.

G. Quinhagak Landfill Site

The landfill and sewage lagoon for the community of Quinhagak is located approximately 2,000 m (7,000 feet) from the new airport location. The landfill site meets the FAA's minimum distance requirements for the airport.

H. Community Involvement

The residents of the city of Quinhagak have been informed of the planned development by the Alaska DOT&PF Planning Section by written correspondence and through public meetings held in Quinhagak. The completion of this project required an environmental assessment which provided additional opportunity for community involvement and input. Letters from residents are on file at DOT&PF, Central Region offices.

I. Modifications to Standards

1. Design Deviations

Based on wind data collected in Eek from September 1991 to December 1992 the wind coverage afforded by the future runway, 04/22, will be 76.63% at 10.5 knots and 84.42% at 13.0 knots; below the 95% wind coverage recommended by FAA. In cases where one runway does not afford 95% wind coverage, a crosswind runway may be constructed to give pilots a choice of alignments. The available data does not show a clear crosswind. Widening the runway to exceed BI standards would not appreciably increase the wind coverage (see Figure 6 of AMP) and therefore, this approach would not justify the additional expense and environmental damage – an estimated cost increase of $470,000 and 1.75 ha (4.5 ac) of fill. In addition, wind data collected at the Eek Airport probably does not accurately represent conditions at the new Quinhagak Airport location. Wind data from the new airport location will be collected and analyzed as part of the initial development. Additional property required for construction of the crosswind runway (part of the airport's ultimate development) will be shown on the ALP when it is revised to show "as built" conditions. If funding allows, additional property for construction of a crosswind runway will be acquired as part of the initial airport development. It is the current policy of the ADOT&PF to provide rural Alaskan communities with one runway constructed to the dimensions recommended in the FAA and AASP standards. This proposed airport meets all of the criteria, except wind coverage, set forth by the FAA and AASP for the safety of the type of users expected to operate at the Quinhagak Airport.

AIRPORT LAYOUT PLAN CONDITIONALLY APPROVED

By: FAA AIRSPACE REVIEW NUMBER: 97AAL-34-NRA
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600

DATE: 6/1/97

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION-DESIGN AND CONSTRUCTION-AVIATION

APPROVED: _____ STEVE VAN HORN, P.E. DESIGN SECTION CHIEF

APPROVED: _____ MIRIAM M. TRAINOR, P.E. PROJECT MANAGER

DATE 4.22.97
DESIGN TG
DRAWN SW
CHECKED DH

QUINHAGAK AIRPORT

AIRPORT LAYOUT PLAN

NARRATIVE REPORT

SHEET 8 OF 8

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